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# PRO Gate and movement

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## 1 Introduction

In this paper we will examine PRO gate phenomena first discussed in Higginbotham (1980). (1) illustrates the phenomenon:

- (1) a. ??[His<sub>i</sub> getting his<sub>i</sub> car fixed] upset everyone<sub>i</sub>.
- b. [PRO<sub>i</sub> getting his<sub>i</sub> car fixed] upset everyone<sub>i</sub>.

(1b) in which PRO replaces the overt pronoun, shows no Weak Cross Over effects. Higginbotham (1980) dubs the phenomena "PRO gate". One of the main interests of this phenomenon is that we believe its correct analysis argues against having a chain at all. As shown above, the object controls PRO inside the subject. Apparently, as there is no c-command relation between *everyone* and PRO, a chain fails to connect the relation between the antecedent and PRO it binds.

Here, adopting Hornstein's (1999, 2000) suggestion that PRO is a residue of NP-movement, we will show that a strict derivational approach which exploits sideward movement can explain PRO gate phenomena.

## 2 Hornstein (1999, 2000)

Raising and control structures have long been considered to be different. In Government and Binding approach, the former is analyzed to be formed by movement, shown in (2), whereas the latter is to be cases of base generation and subsequent binding of a subject PRO, as in (3).

- (2) a. John seems to leave.
- b. John<sub>i</sub> seems [t<sub>i</sub> to leave].
- (3) a. John wants to leave.
- b. John<sub>i</sub> wants [PRO<sub>i</sub> to leave].

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Hornstein (1999, 2000) argues that raising and control sentences are both generated through movement. (4) illustrates the derivation of a typical control construction.

- (4) a. [to John leave] (building the embedded IP)  
 b. [John<sub>1</sub> [to John<sub>1</sub> leave] (moving 'John' to the Spec IP)  
 c. [wants[John<sub>1</sub> [to John<sub>1</sub> leave]] (building the matrix VP)  
 d. [John<sub>1</sub> [wants[John<sub>1</sub> [to John<sub>1</sub> leave]]]] (moving John to the Spec VP)  
 e. [John<sub>1</sub> [John<sub>1</sub> wants[John<sub>1</sub> [to John<sub>1</sub> leave]]]] (building TP and moving 'John' to its Spec)  
 f. [John<sub>1</sub> [~~John<sub>1</sub>~~ wants[~~John<sub>1</sub>~~ [to ~~John<sub>1</sub>~~ leave]]]] (deleting the copies all but one)

Assuming that theta-roles are features in the sense of inducing greedy movement, instead of observing the theta-Criterion, Hornstein (1999, 2000) permits movement from one theta-position to another. In the example above, 'John' gets the first theta-role when it merges with 'leave' in (4a). Then, it gets the second one when it moves to the specifier of the matrix verb, 'wants' in (4d). The derivation keeps going to converge until (4f). It means that we can dispense with the entity, PRO, which is now identical to NP-trace i.e. a residue of movement in Hornstein's (1999, 2000) approach.

### 3 PRO in Subjects

Hornstein (1999, 2000) assumes that PRO does not exist and that the empty category is a small pro (a null pronoun) in cases where the movement is prohibited. The empty category below serves as an example. Since subject sentences are islands, we cannot extract anything out of the inside of a sentential subject. That is to say, we cannot have the so-called NP trace in the place. As a result, a small pro, which is the pronominal found in many Romance or East Asian languages, fills the gap.

- (5) John<sub>1</sub> thinks that it is believed that [PRO<sub>1</sub> (=pro) shaving himself] is important.

However, if all gaps in subjects are null pronouns (=pro) why are Weak Cross Over (WCO) effects not observed in the so-called PRO gate sentences such as (6)?<sup>1</sup>

- (6) a. Who<sub>i</sub> did [PRO<sub>i</sub> cooking his<sub>i</sub> lunch] annoy t<sub>i</sub>?  
 b. [PRO<sub>i</sub> having to make his<sub>i</sub> mother breakfast] kept everyone<sub>i</sub> in the kitchen.

WCO-effects appear where a pronoun is interpreted as a bound variable but neither the pronoun nor the variable which are semantically tied c-command the other as in (7).<sup>2</sup>

- (7) \*Q<sub>1</sub>.... pronoun<sub>1</sub>....variable<sub>1</sub> (where the pronoun and the variable are not in a c-command relation.)

But as Higginbotham (1980) points out, WCO-effects disappear when PRO controlled by the Q-element intervenes between the Q-element and the pronoun as shown (6). That is, descriptively, the configuration (8) cancels WCO-effects:

- (8) Q<sub>1</sub>...PRO<sub>1</sub>...pronoun<sub>1</sub>....variable<sub>1</sub> (where the pronoun and the variable are not in a c-command relation.)

Then, if PRO in (6) is indeed a small pro, which is pronominal, this sentence should be prey to WCO-effects, just like the sentence (9).

- (9) ??Who<sub>i</sub> did [his<sub>i</sub> cooking his<sub>i</sub> lunch] annoy t<sub>i</sub>?

On the other hand, if we can say that PRO in PRO gate sentences is a residue of A-movement, we can use the fact that A-movement cancels WCO-effects as in (10), in order to account for the absence of WCO-effects in PRO gate sentences.

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<sup>1</sup>An example (6a) involves psych verb constructions. We assume that PRO gate effects are not restricted to psych verb constructions. And that the problem is to explain PRO gate effects on the assumption that the PRO headed gerunds in (6) are all external arguments.

<sup>2</sup>The definition of a variable here is the locally A'-bound copy.

- (10) a. \*It seems to his<sub>1</sub> mother that everyone<sub>1</sub> is handsome.  
 b. Everyone<sub>1</sub> seems to his<sub>1</sub> mother t<sub>1</sub> to be handsome.

Note that the fronting of the Q-element with local clause internal scrambling also cancels WCO-effects in (11). This is analogous to the cases in (10) if, as Saito (1992) argues, local clause internal scrambling is a species of A-movement.

- (11) ?? John-ga [Mary-ga pro<sub>1</sub> atta]-atode dono hito<sub>1</sub>-ni -mo atta.  
*John-NOM Mary-NOM pro met after every man-DAT-too met*  
 'John met every person<sub>1</sub> after Mary had met him (pro)<sub>1</sub>'  
 (12) John-ga [dono hito<sub>1</sub>-ni mo]<sub>2</sub> [Mary-ga pro<sub>1</sub> atta]-atode t<sub>2</sub> atta.  
*John-NOM every man-DAT-too Mary-NOM pro met after met*  
 'John met every person<sub>1</sub> after Mary had met him (pro)<sub>1</sub>'

Given the description in (8), the question is whether we can simply stipulate that PRO has the power to cancel WCO-effects when it binds the pronoun. It appears that we cannot simply assume that all PROs act as gates. (13) displays WCO-effects even though PRO intervenes between Wh-element and the pronoun in the same way as in (6).

- (13) ??Who<sub>1</sub> did [the fact that PRO<sub>1</sub> cooking his<sub>1</sub> lunch is mandatory] annoy t<sub>1</sub>?

The contrast between this sentence (13) and (6) suggests that the PROs in these sentences are different. If they were identical, we would expect them to act the same way, with respect to the PRO gate, contrary to fact. If, however, we show the PRO in (6) is a residue of A-movement but the one in (13) is not, we can account for the contrast between (6) and (13) as follows. Given the fact that A-movement cancels WCO-effects as in (10), PRO, which is a product of A-movement should do so as well. Whereas when A-movement is prevented, PRO is small pro, which being pronominal has no power to obviate WCO-effects. Observe that this line of thought requires movement from inside the subject to a position outside the subject. However subjects are generally taken to be islands, and we cannot freely extract elements out of them. For example, Wh-movement from subjects is unacceptable. It violates the CED, which bans the extraction from subjects and adjuncts:

- (14) a. \*Who do you think that [pictures of t] resemble photos of Bill?  
 b. \*Who do you get jealous [because I talked to t]?

In other words, the question we must address now is how movement out of the subject is possible without violating the CED.

#### 4 Movement from the Inside Subjects

Nunes (1995) argues that if movement is the interaction of the two operations, Copy and Merge, sideward movement is possible. Sideward movement is involved in the derivation in which two sub-structures  $\alpha$  and  $\beta$  are built as in (15a) and an item of  $\alpha$ , say  $\gamma$ , is copied (15b) and merged with  $\beta$  (15c).

- (15)a. [ $\alpha \dots \gamma \dots$ ] [ $\beta \dots$ ] (Two independent trees.)
- b. [ $\alpha \dots \gamma \dots$ ]  $\gamma$  [ $\beta \dots$ ] (Copying T in  $\alpha$ .)
- c. [ $\alpha \dots \gamma \dots$ ] [ $\gamma[\beta \dots]$ ] (Merging the copy with the other tree,  $\beta$ .)

Nunes (1995) makes use of this sideward fashion to account for Parasitic Gap constructions and Across The Board constructions as instances of the movement between the adjunct and the main clause as instances of the movement between the adjunct and the main clause.

Given sideward movement, we can expect an element to move sideward from the subject to the main clause. Assuming the Extension Condition, the subject must be an independent whole tree at some point of the derivation. Even in simple sentences such as (16), we need two independent trees

- (16) The man loves Mary.
- a. [the[man]] [love[Mary]] (Two independent sub trees.)
- b. [[the[man]] [love[Mary]]] (Merging these two trees.)

In (16a) there are two sub-trees, the subject-sub tree and the predicate sub-tree. Then, these two merge to form the whole sentence in (16b). But the following derivation (17) is excluded by the Extension Condition:

- (17)a. [love[Mary]]
- b. [[man][love[Mary]]]
- c. \*[[the[man]][love[Mary]]] (Violating the Extension Condition.)

The operation in (17c) violates the Extension Condition for "the" is inserted into the tree instead of merging with its root. Thus, if the subject is an independent tree before it merges with the VP, sideward movement from subjects should be possible in a manner similar to the movement which Nunes (1995) proposes between the adjunct and the main clause.

## 5 PRO gate as Movement

Now, we can see how the derivation which exploits sideward movement explains PRO gate phenomena. Let us take the sentence (18) at first and start the derivation from the subject:

- (18) Who<sub>i</sub> did [PRO<sub>i</sub> wearing his<sub>i</sub> best clothes] make t<sub>i</sub> sweat?
- (19) a. [<sub>IP</sub> who<sub>i</sub> [<sub>VP</sub> who<sub>i</sub> wearing [his best cloth]]] (building the subject)  
 b. [<sub>IP</sub> who<sub>i</sub> [<sub>VP</sub> who<sub>i</sub> wearing [his best cloth]]] sweat (taking "sweat" from the numeration)  
 c. [<sub>IP</sub> who<sub>i</sub> [<sub>VP</sub> who<sub>i</sub> wearing [his best cloth]]] [<sub>AP</sub> [who<sub>i</sub>] sweat] (sideward-movement)  
 d. [<sub>IP</sub> who<sub>i</sub> [<sub>VP</sub> who<sub>i</sub> wearing [his best cloth]]] [<sub>VP</sub> make [<sub>AP</sub> [who<sub>i</sub>] sweat]] (merge "make" with the small clause)  
 e. [<sub>VP</sub> [<sub>IP</sub> who<sub>i</sub> [<sub>VP</sub> who<sub>i</sub> wearing [his best cloth]]] make [<sub>AP</sub> [who<sub>i</sub>] sweat]] (subject merging with vP)  
 f. [<sub>CP</sub> who<sub>i</sub> [<sub>TP</sub> [<sub>IP</sub> who<sub>i</sub> [<sub>VP</sub> who<sub>i</sub> wearing [his best cloth]]] [<sub>VP</sub> make [<sub>AP</sub> [who<sub>i</sub>] sweat]]]] (Wh-movement.)  
 g. [<sub>CP</sub> who<sub>i</sub> [<sub>TP</sub> did [<sub>IP</sub> who<sub>i</sub> [<sub>VP</sub> who<sub>i</sub> wearing [his best cloth]]] [make [<sub>AP</sub> [who<sub>i</sub>] sweat]]]] (do-support.)  
 h. [<sub>CP</sub> who<sub>i</sub> [<sub>TP</sub> did [<sub>IP</sub> ~~who<sub>i</sub>~~ [<sub>VP</sub> ~~who<sub>i</sub>~~ wearing [his best cloth]]] [make [<sub>AP</sub> [~~who<sub>i</sub>~~] sweat]]]] (deleting copies.)

In (19a), the subject tree is built up. Then, (19b) picks up "sweat" from the lexical array. In (19c), "who" moves sideward to merge with "sweat". In (19d), the verb, "make" merge with the small clause. Both of trees merge in (19e). In (19f), Wh-movement occurs. Then, in (19g) and (19h), Do-support and the deletion of copies come into play to complete the derivation of the sentence. Note: Given this derivation, PRO in the PRO gate sentence is a residue of A-movement between the Wh-operator and the pronoun. Thus, we account for why it is that in such sentences WCO-effects fail to arise.

## 6 PRO gates are OC PRO

Hornstein (1999) assembles various diagnostic properties of Obligatory Control PRO, which, he argues, follow if OC PRO is a result of NP-movement.<sup>3</sup>

<sup>3</sup>These examples are taken from Hornstein (1999: 73)



- (20) a. \*It was expected PRO to shave himself.
- b. \*John thinks that it was expected PRO to shave himself.
- c. \*John's campaign expects PRO to shave himself.
- d. \*John expects PRO to win and Bill does too. (=Bill win)
- e. \*John<sub>1</sub> told Mary<sub>2</sub> PRO<sub>1+2</sub> to wash themselves/each other.
- f. The unfortunate expects PRO to get a medal.
- g. Only Churchill remembers PRO giving the BST speech.

(20a) shows that OC PRO must have an antecedent. (20b) shows that the antecedent must be local and (20c) indicates that it must c-command PRO. (20d) shows that OC PRO only licenses a sloppy reading under ellipsis. (20e) shows that OC PRO cannot have split antecedents. (20f) shows that OC PRO only allows a *de se* reading. That is, in the sentence the unfortunate must believe that s/he, herself/ himself will get a medal. In other words, the sentence does not allow the interpretation that the unfortunate, who turns out to be awarded a medal, believed that someone other than him would get the medal. In (20g), Only+NP must be the controller of PRO. That is, the sentence has the only meaning, in that only Churchill could have this memory because he was the sole person who gave the BST speech.

Given these properties of OC PRO, let us examine PROs in the PRO-gate configurations. There are several reasons to believe that PRO in such a configuration is indeed OC PRO. Consider the next paradigm below.

- (21) a. PRO to have to feed herself/\*oneself annoys Mary
- b. \*PRO shaving himself made Mary believe that John was handsome
- c. \*PRO shaving himself made John's mother late
- d. \*PRO<sub>1+2</sub> washing themselves made Bill<sub>1</sub> kiss Mary<sub>2</sub>
- e. PRO possibly receiving a medal unnerved the unfortunate
- f. PRO giving the speech upset only Churchill.
- g. PRO<sub>1</sub> shaving himself every morning disturbed John<sub>1</sub> but not Bill<sub>2</sub> ( $\langle$ PRO<sub>1+2</sub> shaving himself $\rangle$  did not disturb Bill<sub>2</sub>)

The paradigm in (21) parallels that in (20). (21a) indicates that this PRO requires an antecedent. (21b) suggests that the antecedent be the closest candidate. (21c) is out because 'John' is inside a DP just as (20c). (21d), like (20d), does not allow split antecedents. (21e) only receive a *de se* reading in that the unfortunate is unnerved only if he knows that he is the possible medal recipient. (21f) cannot have the reading indicated in (22), which paraphrases roughly as "Churchill's having to give the speech upset only Churchill."

(22) His<sub>i</sub> having to give the speech upset only Churchill<sub>i</sub>.

Finally, though the VP ellipsis test is not applicable in these cases, we can consider stripping cases and these seem to yield the expected sloppy readings:

(23) PRO shaving every morning bothers Tom but not Bill (= Bill shaving every morning, not Tom shaving every morning).

To sum up, from the evidence surveyed, we conclude that PRO in PRO-gate configurations belongs to OCPRO. This is what we expect if such gate-like PROs are residues of movement.

## 7 New Evidence for Merge Over Move

As shown in (21b) and below, PROs must be backward-controlled by the *highest* nominal.

- (24) a. \*Who<sub>i</sub> did PRO<sub>i</sub> shaving his<sub>i</sub> beard convince Mary to trust t<sub>i</sub>?  
 b. Who did PRO<sub>i</sub> shaving his beard convince t<sub>i</sub> to address Mary?

Why so? Considering the derivation of the sentence step by step gives us an answer. In (24a), at first, the subject is built up to form [who [shaving [his beard]]]. Then, the verb "trust" is introduced in the derivational space. Notice that we cannot move "who" sideward out of the subject to merge it with "trust" because we still have "Mary" in the array. That is, this operation violates Merge Over Move. Hence, we must simply merge "Mary" with "trust" instead of moving "who" from the subject.

- (25) a. [who [shaving his beard]] (building the subject.)  
 b. [who [shaving his beard]] trust (picking up "trust" from the numeration.)  
 c. \*[who<sub>i</sub> [shaving his beard]] [trust [who<sub>i</sub>]] (violating Merge over Move)

As for the sentence (24b), after we build the subject in (26a), we pick up "address" in (26b). At this point, unlike (25c), we merge "Mary" with it, instead of moving "who" out of the subject in (26c). There is no violation of Merge Over Move. Then, "who" moves to the specifier of vP in (26d). The movement should be valid, for the nominal is exhausted in the numeration. A few steps later, the subject merges with the main clause (26f). Finally ordi-

nary operations take place to complete the derivation (26g) with the copy of "who" in the subject position of the clausal gerund in between the Wh-operator and the pronoun. This sentence, thus, shows no WCO-effects:

- (26) a. [who [shaving his beard]] (building the subject)  
 b. [who [shaving his beard]] address (picking up "address" from the numeration)  
 c. [who<sub>i</sub> [shaving his beard]] [address [Mary]] (Merging "Mary" with the verb)  
 d. [who<sub>i</sub> [shaving his beard]] [who<sub>i</sub> [address [Mary]]] (sideward movement)  
 e. [[who<sub>i</sub> [shaving his beard]] [convince [who<sub>i</sub> [to [who<sub>i</sub> [address [Mary]]]]]]] (building up the predicate tree)  
 f. [who<sub>i</sub> [[who<sub>i</sub> [shaving his beard]] [convince [who<sub>i</sub> [to [who<sub>i</sub> [address [Mary]]]]]]]] (Wh-movement)  
 g. [who<sub>i</sub> did [[~~who<sub>i</sub>~~ shaving his beard]] [convince [~~who<sub>i</sub>~~ [to [~~who<sub>i</sub>~~ [address [Mary]]]]]]]] (the deletion of copies and Do-support)

## 8 How to interpret CED

The remaining question to answer is why is the movement out of the subject is allowed in PRO Gate. Recall that the extraction from the subject is supposed to violate the CED. However, at the point where sideward movement applies the constituent we have moved from, has not yet been merged and so need not be considered a subject. In effect, at this point in the derivation the CED will not apply. This can be seen if we adopt Uriagereka's (1999) interpretation of the CED.<sup>4</sup>

Uriagereka (1999) argues that a unit of locally total command (command unit = CU) is sufficient for linearization or Spell-out. In short, in order for the tree of the subject or adjunct to merge with another tree, it must be spelled-out. Since it is already shipped to the interface at this point, we cannot execute any further syntactic operation inside of the tree. This explanation of CED effects is useful here, because it prevents the operation inside of the subject only after the subject is attached to the main tree.<sup>5</sup> To put this the

<sup>4</sup>One need not adopt Uriagereka's (1999) type of the CED. See Hornstein (2000) for a barriers-like approach to the CED.

<sup>5</sup>See Nunes & Uriagereka (2000) for a similar argument.

other way around, in Uriagereka's (1999) interpretation of the CED, we can move elements from one tree to another as long as they are not connected.<sup>6</sup>

Now, we can also see why WCO-effects appear in (27) where the clause that contains PRO is embedded:

- (27) ??Who<sub>1</sub> does [the fact that PRO<sub>1</sub> cooking his<sub>1</sub> lunch is mandatory] annoy t<sub>1</sub>?
- (28) a. [who cooking his lunch] (building the subject.)  
 b. [who cooking his lunch] is mandatory (taking 'is' and 'mandatory' from the numeration.)  
 c. [who cooking his lunch] [is mandatory] (building the predicate.)  
 d. [[who cooking his lunch] [is mandatory]] (merging the subject with the predicate.)  
 e. [the fact [that[[who cooking his lunch] [is mandatory]]]] (building up the subject.)  
 f. [the fact[that[[who cooking his lunch] [is mandatory]]]] annoy (taking 'annoy' from the numeration.)  
 g. \*[the fact[that [[who<sub>1</sub> cooking his lunch] is mandatory]]] [annoy[who<sub>1</sub>]] (illicit movement.)

In (28a), we build the subject in the same way as we did in (19a). If the derivation converged, the sentence should not show WCO-effects because the copy of "who" in the subject position of the clausal gerund would intervene between the Wh-operator and the pronoun in the same way as in (18). At the point in (28d) when the subject merges with the vP, it is spelled-out. So, when we need to move "who" later in (28g), we cannot extract it from inside the subject. Since this movement is prevented, PRO in this sentence cannot be the copy of 'who' in A-position.<sup>7</sup> Instead, it is small pro, which is pro-

<sup>6</sup>This is opposite to the position in Epstein (1999). We will come back to this issue later.

<sup>7</sup>People pointed out that if sideward movement is done in the opposite way, namely, from the object position to the inside subject, PRO in this sentence should be a residue of movement, which would cause PRO gate phenomena. A possible solution is that following Chomsky's (1999) assumptions: (1) Accusative Case is checked overtly. (2) Once Case is checked, the nominal is not available for the further derivation, no element can sideward-move from the object position to the subject. Nunes & Uriagereka (2000) also argue that sideward movement always proceeds from "adjunct" to the main tree out of a different motivation. This is consistent with the analysis here.

nominal. Therefore, this sentence is prey to WCO-effects just like the sentence (29ab).<sup>8</sup>

- (29) a. ??Who<sub>i</sub> did [his<sub>i</sub> cooking his<sub>i</sub> lunch] annoy t<sub>i</sub>?  
 b. ??Who<sub>i</sub> does [the fact that his<sub>i</sub> cooking his<sub>i</sub> lunch is mandatory] annoy t<sub>i</sub>?

## 9 Some Implications of the Analysis; Derivations and Representations

### 9.1 Chains and Representations

We have argued that control from the object to inside a sentential subject is an instance of Obligatory Control and should be regarded as the result of NP-movement as in (30):

- (30) PRO<sub>i</sub> cooking his lunch annoys everyone<sub>i</sub>.

If this is correct, "chain" in the traditional sense is not a primitive notion in syntax, contrary to Brody (1995). Following Brody (1995: 6), chains in the traditional sense are defined as "an ordered set where every member binds the next and every member except the first is nonpronominal empty category". With this notion of chain, Brody (1995) explores a representational approach to grammar. However, given sideward movement, which is not restricted to c-commanding expressions, we get into trouble in PRO gate configurations, where the controller and PRO are not connected in a c-command relation, if we assume that a chain is needed as a licensing condi-

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<sup>8</sup>Note that the PROs confined within other kinds of islands also fail to be gates.

??That PRO<sub>i</sub> leaving early upset his<sub>i</sub> friend made nobody<sub>i</sub> feel lousy. (subject island)  
 ??The girl whom PRO<sub>i</sub> shaving his<sub>i</sub> face fascinated kissed everyone<sub>i</sub>. (relative clause)  
 ??Any attempt PRO<sub>i</sub> to argue with his<sub>i</sub> mother would leave everyone<sub>i</sub> exhausted. (complex NP island)  
 ??Who<sub>i</sub> did the question whether PRO<sub>i</sub> to hit his<sub>i</sub> mother upset t<sub>i</sub>? (complex NP island + Wh island)

tion for movement.<sup>9</sup> Since the notion of chain is a necessary for a representational approach to grammar as Brody (1995) notes, this conclusion is problematic for a representational view of syntax.

To sum, if, as argued above, PRO gate phenomena are the result of sideward movement from sentential subjects, it suggests that derivational approaches to grammar are superior to representational alternatives.

## 9.2 C-command and Derivations

Epstein (1999) argues that c-command is a basis of syntactic relations, and he tries to deduce it in terms of a strict derivational approach to grammar. His derivational definition of c-command is as follows:

(31) Epstein (1999: 329) Derivational c-command:

X c-commands all and only the terms of the category Y with which X was paired *by Merge or by Move* in the course of the derivation.

However, as Pesetsky (1995) and others have already pointed out, the control relation we have seen here is an apparent exception to the c-command property of syntactic relations, and we have accounted for it with sideward movement, which is a non-c-command operation. Epstein (1999) claims, "no relations hold between members of two trees that were unconnected at any point in the derivation". Then, he introduces the First Law as a derivational law.

(32) The First Law (Epstein 1999:334):

$T_1$  can enter into c-command (perhaps, more generally, syntactic) relations with  $T_2$  only if there exists no derivational point at which

- a.  $T_1$  is a term of  $K_1$  ( $K_1 \neq T_1$ ), and
- b.  $T_2$  is a term of  $K_2$  ( $K_2 \neq T_2$ ), and
- c. There is no  $K_3$  such that  $K_1$  and  $K_2$  are both terms of  $K_3$ .

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<sup>9</sup> Notice that Quantifier Raising is irrelevant to the control relation in (30). Chomsky (1986a) and Safir (1996) point out that A'-movement does not enter into control relations, citing the sentence (i) where the control relation remains unsuccessful though the overtly moved Wh c-commands PRO.

(i) \*Who<sub>i</sub> did [PRO<sub>i</sub> shaving his<sub>i</sub>beard] convince Mary to trust t<sub>i</sub>

This clearly contrasts with what we have been assuming. Recall that movement out of the subject is possible only before it merges with another tree, via sideward movement, and we cannot extract any element out of the subject after the merge. In other words, we need a point where two trees are unconnected in the derivation in order to execute sideward movement.<sup>10</sup> Worse, PRO gate phenomena never get into c-command relations at any point in a derivation. Epstein (1999) attempts to attribute to the first law the consequence that "there are no relations between members of the specifier and members of X". This is empirically inappropriate. PRO gate phenomena serve as an obvious counterexample.

To the extent that what we have seen is true, this paper supports a strictly derivational approach to grammar. If we solely look at the result of the operation that we have applied to PRO gate phenomena, it apparently violates Chain Condition and Sentential Subject Condition. We have seen that sideward movement makes the derivation converge without violating these conditions.

In addition, we must dispense both with chains in the traditional sense and c-command constraint on Movement, contrary to Brody (1995) and Epstein (1999). The notion of chain, if anything, should be regarded as simply the history of a legitimate series of movements of an element. This view corresponds with Chomsky's (2000) (i.e., "Basic properties of chains should then follow from elementary derivational principle."), which is return of the interpretation that Chomsky (1986a) gives to them: chains are a "reflection of 'history of movement.'"

## 10 Conclusion

We have argued that the correct analysis of PRO gate phenomena involves sideward movement and this is incompatible with chains in the traditional sense. Since the concept of chain is necessary for a representational approach to grammar, our analysis supports a derivational approach to Universal Grammar. At the same time, we have denied that c-command is a primitive notion in syntax, contrary to Epstein (1999), while arguing that his First law is empirically unsatisfactory. Furthermore, we have shown that the subject is not intrinsically an island. Rather, we conclude that the timing in a derivation decides whether a subject is an island for a given operation. Namely, movement out of the subject is, in some sense, possible.<sup>11</sup>

<sup>10</sup> See Nunes (1995:85, fn.50) for a similar argument.

<sup>11</sup> See Nunes & Uriagereka (2000) for a similar claim.

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